

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A force feedback method, comprising:

placing a receiver at a predetermined height above a plurality of nozzles arranged on a plane, the receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry,

selecting a nozzle for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq |\theta_{ij}| \leq \gamma$, wherein $|V_{PN}|$ indicates a distance between a candidate from among a plurality of candidate nozzles arranged on the plane, the selected nozzle having a smallest distance between the selected nozzle and the axis of symmetry of the receiver, $R1$ indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface unit, $R2$ indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle between a first direction from the candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle, and

jetting a gas or a liquid from the selected nozzle upon the inclined side surface unit of the receiver to convey a force in a direction perpendicular to a direction of the jetting gas or liquid toward the axis of symmetry of the receiver, ~~wherein~~

~~each of the plurality of candidate nozzles is positioned on the plane in an area below an area of the receiver between the outer border of the concave center unit and an outer border of the inclined side surface unit, and~~

~~an angle difference between a first direction from each candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver is equal to or less than a predetermined value, the first direction and the second direction being perpendicular to the direction of the jetting gas or liquid.~~

Claim 2 (Previously Presented): The force feedback method as claimed in Claim 1, further comprising the step of:

positioning the inclined side surface unit according to a position or an orientation of the receiver.

Claim 3 (Previously Presented): The force feedback method as claimed in Claim 1 or 2, further comprising the step of:

calculating a virtual object according to the position or the orientation of the receiver, so as to display a virtual space including the virtual object based on a result of the calculating.

Claim 4 (Canceled).

Claim 5 (Currently Amended): A force feedback apparatus, comprising:

jetting means for jetting a gas or a liquid from a plurality of nozzles arranged in a plane,

receiver means including a concave center unit that declines radially outward from an axis of symmetry of the receiver means to an outer border of the concave center unit, such

that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry, the inclined side surface unit for conveying a force perpendicular to a direction of the jetting gas or liquid toward the axis of symmetry of the receiver means, the receiver means placed at a predetermined height above the plane, and

jet control means for selecting a nozzle for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq |\theta_{ij}| \leq \gamma$, wherein $|V_{PN}|$ indicates a distance between a candidate from among a plurality of candidate nozzles arranged on the plane and controlling the jetting means for jetting the gas or the liquid from the selected nozzle, the selected nozzle having a smallest distance between the selected nozzle and the axis of symmetry of the receiver means, $R1$ indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface unit, $R2$ indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle between a first direction from the candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle, and for controlling the jetting means for jetting the gas or the liquid from the selected nozzle, wherein

each of the plurality of candidate nozzles is positioned on the plane in an area below an area of the receiver means between the outer border of the concave center unit and an outer border of the inclined side surface unit, and

an angle difference between a first direction from each candidate nozzle to the axis of symmetry of the receiver means and a second direction of a force to be provided to the receiver means is equal to or less than a predetermined value, the first direction and the second direction being perpendicular to the direction of the jetting gas or liquid.

Claim 6 (Previously Presented): The force feedback apparatus as claimed in Claim 5, further comprising:

a deformation mechanism means for changing a position or an orientation of the inclined side surface unit, and

receiver inclined side surface control means for controlling the deformation mechanism according to the position or the orientation of the receiver means, as measured by a receiver measurement means.

Claim 7 (Previously Presented): The force feedback apparatus as claimed in Claim 5 or 6, further comprising:

virtual object calculation means for calculating a virtual object in a virtual space according to the position or the orientation of the receiver means, as measured by the receiver measurement means, and for causing a virtual object display means to display the virtual space including the virtual object based on a result of the calculation.

Claim 8 (Canceled).

Claim 9 (Currently Amended): A non-transitory computer readable storage medium storing a program for causing a computer to realize a force feedback method, the program, when executed by a processor of the computer, causing the computer to execute the steps of:

selecting a nozzle for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq |\theta_{ij}| \leq \gamma$, wherein $|V_{PN}|$ indicates a distance between a candidate from among a plurality of candidate nozzles arranged on a plane, the selected nozzle having a smallest distance between the selected nozzle and a center axis of a

receiver, the receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry, R1 indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface unit, R2 indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle between a first direction from the candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle, and

jetting a gas or a liquid from the selected nozzle upon the inclined side surface unit of the receiver to convey a force in a direction perpendicular to a direction of the jetting gas or liquid toward the axis of symmetry of the receiver,~~wherein~~

~~each of the plurality of candidate nozzles is positioned on the plane in an area below an area of the receiver between the outer border of the concave center unit and an outer border of the inclined side surface unit, and~~

~~an angle difference between a first direction from each candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver is equal to or less than a predetermined value, the first direction and the second direction being perpendicular to the direction of the jetting gas or liquid.~~

Claim 10 (Previously Presented): The non-transitory computer readable storage medium storing a program as claimed in Claim 9, the program further causing the computer to execute the steps of:

changing a position or an orientation of the inclined side surface unit according to the position or the orientation of the receiver, as measured by a receiver measurement unit.

Claim 11 (Previously Presented): The non-transitory computer readable storage medium storing a program as claimed in Claim 9 or 10, the program further causing the computer to execute the steps of:

calculating a virtual object in a virtual space according to the position or the orientation of the receiver, as measured by the receiver measurement unit, and

causing a virtual space display means to display the virtual space including the virtual object based on a result of the calculation.

Claim 12 (Canceled).

Claim 13 (Currently Amended): A force feedback method, comprising:

selecting one or more of a plurality of nozzles arranged in a plane for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq |\theta_{ij}| \leq \gamma$, wherein $|V_{PN}|$ indicates a distance or vector between a candidate nozzle or plurality of nozzles and the axis of symmetry of a receiver, the receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry, $R1$ indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface unit, $R2$ indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle

between a first direction from a candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle;

jetting a gas or a liquid from the selected one or more nozzles upon a center of a receiver to convey a force in a direction of the jetting gas or liquid, ~~the receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry; and~~

jetting the gas or the liquid from the selected one or more nozzles upon the inclined side surface unit of the receiver to convey a force in a direction perpendicular to the direction of the jetting gas or liquid toward the axis of symmetry of the receiver.

Claim 14 (Currently Amended): A force feedback apparatus, comprising:

a plurality of nozzles arranged in a plane, each nozzle to jet a gas or a liquid;

a receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry; and

a controller to select one or more of the plurality of nozzles arranged in a plane for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq \theta_{ij} \leq \gamma$, wherein $|V_{PN}|$ indicates a distance or vector between a candidate nozzle or plurality of nozzles and the axis of symmetry of a receiver, $R1$ indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface

unit, R2 indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle between a first direction from a candidate nozzle to the axis of symmetry of the receiver and a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle, and to control the selected one or more of the plurality nozzles to jet the gas or the liquid upon the concave center unit to convey a force in a direction of the jet gas or liquid, and to jet the gas or the liquid upon the inclined side surface unit to convey a force perpendicular to the direction of the jet gas or liquid toward the axis of symmetry of the receiver.

Claim 15 (Currently Amended): A non-transitory computer readable storage medium storing a program, which, when executed by a computer processor, causes the computer to execute a force feedback method, comprising the steps of:

selecting one or more of a plurality of nozzles arranged in a plane for which $|V_{PN}|$ is the smallest from among candidate nozzles on the plane that satisfy $R1 \leq |V_{PN}| \leq R2$ and $0 \leq |\theta_{ij}| \leq \gamma$, wherein $|V_{PN}|$ indicates a distance or vector between a candidate nozzle or plurality of nozzles and the axis of symmetry of a receiver, the receiver including a concave center unit that declines radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and an inclined side surface unit that inclines radially outward from the outer border of the concave center unit with respect to the axis of symmetry, R1 indicates a distance between the axis of symmetry of the receiver and an inner border of the inclined side surface unit, R2 indicates a distance between the axis of symmetry of the receiver and an outer border of the inclined side surface unit, $|\theta_{ij}|$ indicates an absolute value of an angle between a first direction from a candidate nozzle to the axis of symmetry of the receiver and

a second direction of a force to be provided to the receiver, and γ indicates a predetermined value for the angle;

jetting a gas or a liquid from the selected one or more nozzles upon ~~[[a]]~~ the concave center unit of a receiver to convey a force in a direction of the jetting gas or liquid; and

jetting the gas or the liquid from the selected one or more nozzles upon ~~[[an]]~~ the inclined side surface unit of the receiver to convey a force in a direction perpendicular to the direction of the jetting gas or liquid toward an axis of symmetry of the receiver, ~~the concave center unit of the receiver declining radially outward from an axis of symmetry of the receiver to an outer border of the concave center unit, such that a shape of the concave center unit is a hemisphere, and the inclined side surface unit inclining radially outward from the outer border of the concave center unit with respect to the axis of symmetry.~~